WHAT IS CLAIMED IS:

1. A method for producing a silicon single crystal, wherein the silicon single crystal is pulled while doping with carbon and controlling V/G (V: crystal pulling rate, G: crystal solid-liquid interface temperature gradient along a growing axis) to have an N-region over an entire plane of the crystal in which the silicon single crystal is grown in accordance with Czochralski method.

2. The method for producing a silicon single crystal according to claim 1, wherein the silicon single crystal is doped with nitrogen as well as carbon in which the CZ silicon single crystal is grown.

Sub A1

3. The method for producing a silicon single crystal according to claim 1, wherein the silicon single crystal is pulled while doping with carbon having concentration of 0.1 ppma or more and controlling V/G within a range of from 0.183 to 0.177 $mm^2/K \cdot min$.

4. The method for producing a silicon single crystal according to claim 2, wherein a silicon single crystal is pulled while doping with carbon having concentration of 0.1 ppma or more and

controlling V/G within a range of from 0.183 to 0.177 $mm^2/K\cdot min$.

5. A method for producing a silicon single crystal, wherein the silicon single crystal produced by the method according to claim 1 is processed into wafers, and the wafers are subjected to heat treatment at a temperature of from 600 to 1000°C.

6. A method for producing a silicon single crystal, wherein the silicon single crystal produced by the method according to claim 2 is processed into wafers, and the wafers are subjected to heat treatment at a temperature of from 600 to 1000°C.

7. A method for producing a silicon single crystal, wherein the silicon single crystal produced by the method according to claim 3 is processed into wafers, and the wafers are subjected to heat treatment at a temperature of from 600 to 1000°C.

8. A method for producing a silicon single crystal, wherein the silicon single crystal produced by the method according to claim 4 is processed into wafers, and the wafers are subjected to heat treatment at a temperature of from 600 to 1000°C.

9. A silicon wafer, which contains carbon of 0.1 ppma or more and has an N-region over an entire plane thereof.

10. The silicon wafer according to claim 9, which contains nitrogen of 1×10^{13} number/cm^3 or more.

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11. A method for producing a silicon epitaxial wafer formed an epitaxial layer on a surface of a silicon wafer produced from a CZ silicon single crystal pulled with doping with carbon and nitrogen in which the CZ silicon single crystal is grown, wherein the CZ silicon single crystal is pulled to have carbon concentration, nitrogen concentration and oxygen concentration of from 0.1 to 1 ppma, from 1×10^{13} to 1×10^{14} number/cm^3 and from 15 to 25 ppma, respectively, or from 1 to 3 ppma, from 1×10^{14} to 5×10^{15} number/cm^3 and from 10 to 15 ppma, respectively.

12. The method for producing a silicon epitaxial wafer according to claim 11, wherein the CZ silicon single crystal is pulled not to generate secondary defects.

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13. A silicon epitaxial wafer formed an epitaxial layer on a surface of a silicon wafer produced from a CZ silicon single crystal pulled with doping with

carbon and nitrogen in which the CZ silicon single crystal is grown, wherein the silicon wafer has carbon concentration, nitrogen concentration and oxygen concentration of from 0.1 to 1 ppma, from 1 x 10^{13} to 1 x 10^{14} atoms/cm^3 and from 15 to 25 ppma, respectively, or from 1 to 3 ppma, from 1 x 10^{14} to 5 x 10^{15} atoms/cm^3 and from 10 to 15 ppma, respectively.

14. The silicon epitaxial wafer according to claim 13, wherein a silicon wafer produced from the CZ silicon single crystal pulled with doping with nitrogen has no secondary defects.

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15. A method for producing an annealed wafer formed a denuded zone in a surface layer of a CZ silicon wafer and having oxide precipitates of 1 x 10^9 atoms/cm^3 in a bulk portion by performing a heat treatment to the CZ silicon wafer produced from a CZ silicon single crystal pulled with doping with carbon and nitrogen in which the CZ silicon single crystal is grown, wherein the CZ silicon single crystal is pulled to have carbon concentration, nitrogen concentration and oxygen concentration of from 0.1 to 1 ppma, from 1 x 10^{13} to 1 x 10^{14} atoms/cm^3 and from 15 to 25 ppma, respectively, or from 1 to 3 ppma, from 1 x 10^{14} to 5 x 10^{15} atoms/cm^3 and from 10 to 15 ppma, respectively.

16. The method for producing an annealed wafer according to claim 15, wherein the CZ silicon single crystal is pulled not to generate secondary defects.

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17. An annealed wafer produced by performing a heat treatment to a CZ silicon wafer having carbon concentration, nitrogen concentration and oxygen concentration of from 0.1 to 1 ppma, from 1×10^{13} to 1×10^{14} atoms/cm^3 and from 15 to 25 ppma, respectively, or from 1 to 3 ppma, from 1×10^{14} to 5×10^{15} atoms/cm^3 and from 10 to 15 ppma, respectively, wherein BMD density in a bulk portion is 1×10^9 atoms/cm^3 or more.

18. The annealed wafer according to claim 17, wherein the wafer has no secondary defects.